

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WISCONSIN**

**METSO MINERALS INDUSTRIES, INC.
and METSO MINERALS (FRANCE) S.A.,
Plaintiffs,**

v.

Case No. 10-C-0951

**JOHNSON CRUSHERS INTERNATIONAL, INC.
and ASTEC INDUSTRIES, INC.,
Defendants.**

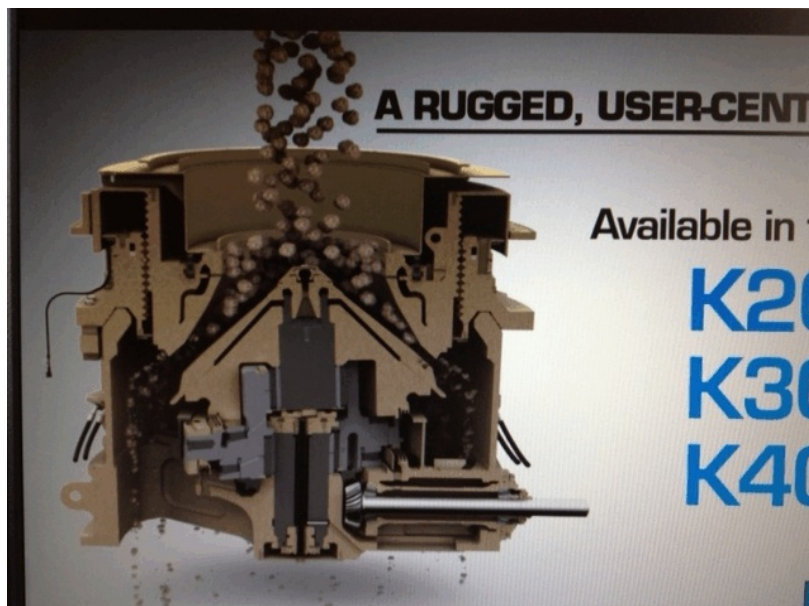
DECISION AND ORDER

John Crushers International, Inc. and Astec Industries, Inc. (together, “JCI”) claim that Metso Minerals Industries, Inc. and Metso Minerals (France) S.A. (together “Metso”) have infringed U.S. Patent No. 6,032,886 (the “886 patent”). The present opinion contains my claim construction. I also address Metso’s motion for summary judgment of non-infringement and invalidity.

I. BACKGROUND

The invention relates to cone-type rock crushers, which are devices used to crush large-sized rock (such as from a quarry) into small-sized rock (for use in things like road beds). In a typical crushing operation, large rocks are dumped into a hopper at the top of the crusher. Gravity causes the rocks to drop into an area of the crusher that is between a cone and a cone-shaped bowl. The bowl is above the cone, and the bowl and the cone form a convex-concave relationship. The cone gyrates beneath the stationary bowl, and thus large rocks in the space between the cone and the bowl are crushed between the surfaces of the cone and the bowl. The smaller rocks then drop out of the bottom of the

crusher. To better visualize this process, it would help to watch the animation of a rock-crushing operation that JCI submitted at the Markman hearing.¹ The figure below is a screenshot from that animation.



Because the operator of a rock crusher will want to make small rocks of different sizes (one inch, an inch-and-a-half, etc.) depending on the job, it is important to be able to adjust the spacing between the bowl and the cone. The spacing is usually adjusted by vertically moving the bowl closer to or farther away from the cone. Smaller rocks are produced by moving the bowl closer to the cone. Larger rocks are produced by moving the bowl farther away from the cone.

In the types of rock crushers at issue in the present case, the bowl is moved by screwing it up or down, as follows: Although the crushing surface of the bowl is bowl-

¹For those without access to the record, I note that as of the date of this opinion, a video similar to the one submitted by JCI was available on YouTube. See <http://www.youtube.com/watch?v=EgBedKPTIq8>. The first fifty seconds of this video depict the general process.

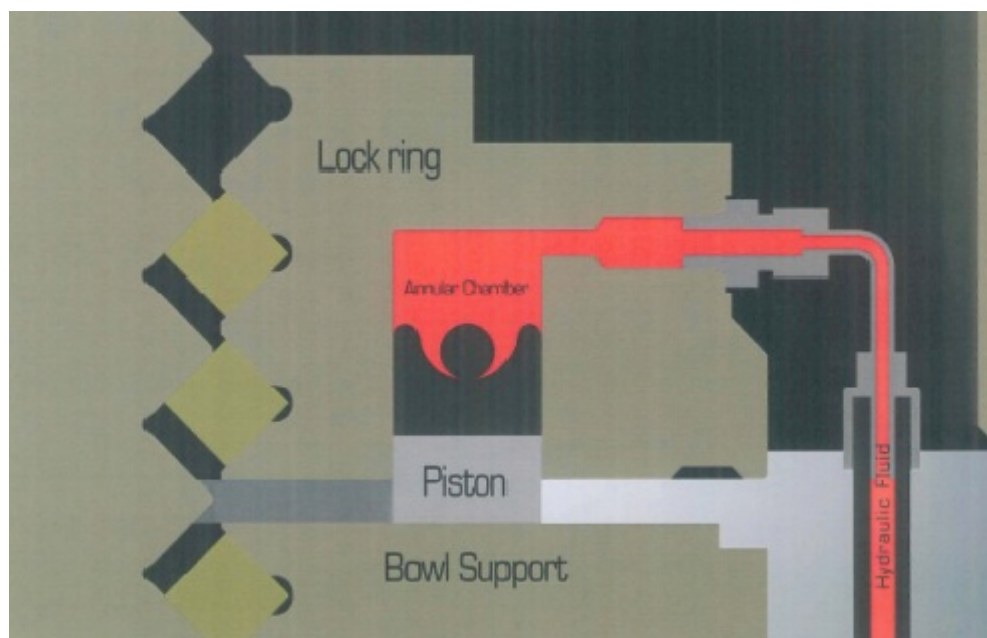
shaped, the “outside” of the bowl is a cylinder. The surface of the cylinder is covered with screw threads, and these threads are mated to screw threads on the surface of a ring-shaped bowl support.² The bowl support is part of the frame of the rock crusher and does not move. To move the bowl, the bowl is either screwed into the ring-shaped bowl support or unscrewed out of the support. One can envision the bowl as the threaded part of a screw and the bowl support as a nut. Screwing the bowl into the bowl support causes the bowl to move downward and closer to the cone. Unscrewing the bowl out of the bowl support causes the bowl to move upward and away from the cone.

Although an operator will want to be able to move the bowl closer to or farther away from the cone between crushing operations, during a crushing operation the operator will want the bowl to remain stationary. This is because if the bowl moves up or down during the operation, the size of the rock will be inconsistent. Thus, the crusher must be equipped with a mechanism that “locks” the bowl into place during crushing operations. When the operation is over, the operator must be able to release the lock so that he or she can move the bowl as needed for the next operation.

The relevant claims of the ’886 patent relate to a mechanism that performs the locking function. The general mechanism can be described as a lock ring. It is a ring that sits on top of the ring-shaped bowl support. Like the surface of the bowl support, the surface of the lock ring has threads mated to the threads on the outside surface of the bowl. Inside the lock ring is a hydraulic cylinder, which consists of a piston and a chamber.

²The ’886 patent uses the term “annular,” and the parties have agreed that this term means “ring shaped.” Throughout this opinion, I will use the terms “ring-shaped” and “annular” interchangeably.

A ring-shaped groove formed into the lock ring serves as the chamber for a ring-shaped piston. The bottom of the piston abuts the upper surface (or rim) of the bowl support. When the operator wants to lock the bowl in place, hydraulic fluid is provided to the upper part of the chamber inside the lock ring, and hydraulic pressure forces the piston downward against the rim of the bowl support. This produces an equal and opposite force that drives the lock ring upward. The threads of the lock ring thus push up against the threads of the bowl, and the result of the threads pushing against each other is a binding lock that prevents the bowl from moving during operation. (In the preferred embodiment, the lock-ring threads push against inserts that have been inserted between the lock-ring threads and the bowl threads.) When the operation is over, hydraulic pressure is released, and this allows the bowl to be moved in preparation for the next job. JCI's animation demonstrates this process, and the figure below depicts the lock ring in the "locked" position.



II. RELEVANT CLAIM LANGUAGE

JCI alleges that Metso infringes claims 8 and 9 of the '886 patent, which are printed below. The disputed claim language is underlined.

8. A rock crusher comprising:

a conical shaped bowl, a cone mounted for oscillating movement within the

conical shaped bowl, said bowl being vertically adjustable relative to the cone for crushing rock to specific sizes;

a frame including an annular bowl support, said bowl adjustably supported within said annular bowl support for vertical adjustment of the bowl relative to the cone;

said vertical adjustment provided by mated screw threads on said support and said bowl whereby the bowl is screwed up or down on the support and thereby closer or farther away from said bowl;

an annular lock ring having a screw thread mated to the bowl and screwed onto the bowl and defining an annular surface in abutment with an annular surface of the support;

an annular chamber provided in one of the lock ring and bowl support and an annular piston fitted to the chamber, said piston providing the abutment surface for one of said lock ring and bowl support; and

a hydraulic fluid source providing hydraulic fluid to the chamber, and a control for controlling the hydraulic fluid flow to the chamber for urging movement of the annular piston toward the surface of the other of the

lock ring and support and thereby producing a binding-type lock that inhibits screw movement of the bowl.

9. A rock crusher as defined in claim 8 wherein the piston is provided with a seal portion between the piston and hydraulic fluid and expands under pressure to seal the chamber and induces movement of the piston against the other of the lock ring and bowl support.

III. DISCUSSION

A. Principles of Claim Construction

A United States patent generally consists of a “specification,” along with one or more drawings. See Kristen Osenga, Linguistics and Patent Claim Construction, 38 Rutgers L.J. 61, 63-82 (2006). The specification consists of a written description of the invention and concludes with one or more “claims.” See 35 U.S.C. § 112. The written description is written in prose and includes a background of the invention as well as detailed information on how to make, use, and/or perform the invention. Osenga, supra, at 63. The claims appear after the written description. Id. Although the claims are technically part of the specification, patent practitioners often speak as though the specification were separate from the claims. Id. at 63 n.8. When practitioners use “specification” in this manner, they are referring to the written description. I will follow this practice.

Each claim in a patent is numbered and is written as a single sentence, and each sentence sets out the boundaries of a single invention. Thus, if a patent contains five claims, the patentee is “claiming” five distinct (though usually related) inventions. A subset of the claims can be “dependent.” Roughly speaking, a dependent claim incorporates all

of the language from an independent claim and then adds something to it. See, for example, claims 8 and 9 of the '886 patent. Claim 8 is independent, and claim 9 (the dependent claim) builds off of it. See Id. at 63 n.10.

It is often said that a claim defines the “metes and bounds” of an invention. See Craig A. Nard, The Law of Patents 394 (2008). What is meant is that the claim defines the scope of the patentee’s right to exclude others from making, using, offering for sale, selling, or importing the invention. Osenga, supra, at 64. So, for example, if another person makes a device that falls within the metes and bounds as defined by the claim, that person can be deemed a “trespasser” and is liable for infringement. Thus, claims serve two functions: (1) defining the scope of the patentee’s right to exclude, and (2) putting others on notice of the scope of that right so that they can avoid infringement. Id.

When the parties in patent litigation disagree on what the claims mean – that is, when the parties disagree about the scope of the patentee’s right to exclude – judges are called upon to resolve the disagreement. See, e.g., Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455 (Fed Cir. 1998) (in banc) (“the totality of claim construction is a legal question to be decided by the judge”). In order to determine what the claims mean, the judge must decide what they would mean to a person having ordinary skill in the relevant art. See, e.g., Phillips v. AWH Corp., 415 F.3d 1303, 1312-14 (Fed. Cir. 2005) (en banc). And deciding what the claims would mean to a person having ordinary skill in the art requires the judge to consider the claims in context rather than in a vacuum. This means that the judge must read the claims in the context of the entire patent, including the specification, id. at 1313, and adopt any background information that the hypothetical

person having ordinary skill in the art would employ when reading the claims, id. at 1314. There is no magic formula or catechism governing this process. Id. at 1324.

B. Construction of Disputed Claim Language

1. “. . . and thereby closer or farther away from said bowl.”

The first disputed phrase appears in the third indented clause of claim 8: “said vertical adjustment provided by mated screw threads on said support and said bowl whereby the bowl is screwed up or down on the support and thereby closer or farther away from said bowl.”

The first three indented clauses provide the most relevant context for understanding the disputed language, as these three clauses together explain the way that the bowl is adjusted relative to the cone by screwing it into and out of the bowl support. The first clause describes the bowl and the cone – i.e., the heart of any cone-type rock crusher. The first clause also explains that the bowl is “vertically adjustable relative to the cone for crushing rock to specific sizes.” The second clause explains that the frame of the rock crusher includes a ring-shaped bowl support, and that the bowl and the bowl support are situated such that the bowl can be vertically adjusted “relative to the cone.” The third clause explains that the bowl and the bowl support have mated threads and that the bowl is moved by screwing the bowl into (down) and out of (up) the bowl support.

The dispute arises because the underlined language contains a drafting error. As written, the claim language states that the bowl is screwed up or down on the support and thereby closer to or farther away from “said bowl.” Obviously, this should be “said cone.” It is metaphysically impossible for a bowl (or any object) to move closer to or farther away

from itself, since that implies a contradiction: the bowl moving and remaining stationary at the same time. Moreover, the context of the entire patent, including the remainder of claim 8 and the specification, makes clear that the invention relates to a cone-type rock crusher in which the bowl is movable so that the space between it and the cone can be adjusted. No person having ordinary skill in the art could think that the invention includes a bowl that moves closer to or farther away from itself. Instead, it would be clear that what is claimed is a bowl that moves closer to or farther away from the cone mentioned in the previous two indented clauses. Thus, since I am to give claims the meaning they would be given by a person having ordinary skill in the art, I construe the disputed language to mean “and thereby closer to or farther away from said cone.”

Metso points out that courts may not “redraft claims” in the course of claim construction, see Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004), and it will no doubt characterize my claim construction as a redrafting of claim 8. However, a court does not “redraft” a claim simply by altering its language. If that were so, every claim-construction decision would involve redrafting claims, since claim construction is simply the process of attempting to clarify the meaning of a claim by substituting one set of words for another. See Dan L. Burk & Mark A. Lemley, Quantum Patent Mechanics, 9 Lewis & Clark L. Rev. 29, 51 (2005) (describing claim construction as “interpreting the words of patent claims using other, different words”). A court redrafts a claim only when it changes the meaning of that claim. But since meaning is determined by background and context rather than by reading individual words in a vacuum, see Lexion Med., LLC v. Northgate Techs., Inc., 641 F.3d 1352, 1356 (Fed. Cir. 2011); Craig A. Nard, A Theory of Claim Interpretation, 14 Harv. J.L. & Tech. 1, 43-52 (2000); John R. Searle, Literal

Meaning, in Expression and Meaning 117, 120 (1979), a court can change a word in a claim without changing the meaning of that claim – i.e., without altering the scope of the patentee’s right to exclude or changing the public’s understanding of the scope of that right. For example, when someone utters the sentence, “I am going to take the walk for a dog,” an ordinary user of English will understand that the speaker intends to take her dog for a walk, just as if the speaker had said, “I am going to take the dog for a walk.” Changing “walk” to “dog” and “dog” to “walk” does not change what the hearer understands. It just expresses what the hearer understands in the conventional way. The same is true when I change the word “bowl” to the word “cone.” Even though the claim says “bowl,” a person having ordinary skill in the art will understand from the surrounding context – the rest of the claim, the specification, and the person’s background knowledge, which includes the fact that people sometimes make mistakes when they speak and write – that the invention includes a bowl that moves closer to or farther from a cone, not a bowl that moves closer to or farther from itself. Thus, the claim as written notifies a person having ordinary skill in the art that the patentee’s right to exclude extends to a cone-type rock crusher in which the bowl moves closer to or farther away from the cone.

Chef America, the case on which Metso primarily relies for the proposition that courts may not redraft claims, is distinguishable from the present case. The invention at issue in that case related to a process for making dough having a “light, flaky, crispy texture.” 358 F.3d at 1372. The disputed claim language required “heating the resulting batter-coated dough to a temperature in the range of about 400° F to 850° F.” Id. at 1373. The district court and the Federal Circuit interpreted this language to mean that “[t]he dough is to be heated to the specified temperature.” Id. The problem with this

interpretation for the patentees was that when the dough is heated to that temperature it is burned to a crisp. What the patentees had meant to say was that the dough is to be heated in an oven in which the air had been heated to the specified temperature. However, the Federal Circuit found that the language that the patentees had used “unambiguously require[d]” that the dough itself be heated to the specified temperature, even if that produced a “nonsensical” result. Id. at 1374. As the court put it, “nothing even remotely suggests that what is to be heated is not the dough but the air inside the oven in which the heating takes place. Indeed, the claim does not even refer to an oven.” Id. at 1373.

In contrast, in the present case there is much that suggests that the bowl is to be moved closer to or farther away from the cone, rather than the bowl, including the surrounding claim language and the specification, all of which refers to a cone and states that the bowl is vertically adjustable relative to the cone. Moreover, it is actually possible to heat dough to a temperature of 400° F to 850° F, whereas it is metaphysically impossible to move a bowl closer to or farther away from itself. Thus, the situation presented in Chef America is not presented here.

I also note that the Chef America decision was driven in part by evidence in the prosecution history suggesting that “the patentees intentionally used ‘to’ rather than ‘at’ in drafting the temperature requirements of the claim.” Id. at 1374. This evidence consisted of a choice that the patentees had made between two phrases that appeared in the prosecution history, one of which stated that the dough was to be heated “at” the specified temperature, and another which stated that the dough was to be heated “to” the specified temperature. To the Federal Circuit, it “appear[ed] that the patentees consciously selected

‘to’ rather than ‘at.’” Id. at 1375. In contrast, there is no evidence in the present case suggesting that the patentees made a conscious choice between two possible ways of drafting the third indented clause of claim 8 – one stating “said bowl” and the other stating “said cone.” Rather, as far as the prosecution history in the record reveals, the “said bowl” drafting error was in the claim from the beginning and was overlooked throughout the prosecution process by both the patentees and the examiner. (Cross Decl., Ex. A [Docket #39-1] at JCI-000521.)

Finally, unlike in Chef America, in the present case JCI has asked me to correct the ‘886 patent by changing “said bowl” to “said cone” pursuant to Novo Industries, L.P. v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed. Cir. 2003).³ Under Novo, I may correct an error in a claim only if: (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification, and (2) the prosecution history does not suggest a different interpretation of the claims. Id. Both of these conditions are met in the present case. First, the correction is not subject to reasonable debate because the claim language as written requires something that is metaphysically impossible, and the rest of the claim and the specification make clear that the bowl is to move relative to

³In Chef America, the court stated as follows:

Chef America does not contend that the patentees' use of “to” rather than “at” was a draftsman's mistake. The patentees made no attempt to have such an error corrected, either by obtaining a certificate of correction from the Patent and Trademark Office pursuant to 35 U.S.C. § 255, or by action of the district court [pursuant to Novo Industries].

358 F.3d at 1375.

the cone.⁴ Second, nothing in the prosecution history suggests a different interpretation. Thus, I will correct the patent by changing “said bowl” to “said cone.” Accord CBT Flint Partners, LLC v. Return Path, Inc., 654 F.3d 1353, 1358-61 (Fed. Cir. 2011) (district court errs when it fails to correct an obvious error in a patent); Group One Ltd. v. Hallmark Cards, Inc., 407 F.3d 1297, 1303 (Fed. Cir. 2005) (district court can correct patent when “error is evident from the face of the patent”); Hoffer v. Microsoft Corp., 405 F.3d 1326, 1331 (Fed. Cir. 2005) (district court errs when it fails to correct an error that is evident on the face of the patent); Lemelson v. General Mills, Inc., 968 F.2d 1202, 1203 & n.3 (Fed. Cir. 1992) (permitting correction of a patent by inserting the word “toy” in a claim where the patent on its face was clearly directed at a toy trackway rather than an actual trackway). However, I want to emphasize that even if I could not “correct” the claim language under Novo, the language in its uncorrected form would still mean that the bowl moves closer to or farther away from the cone. Again, this is because the words “said bowl” have no meaning in isolation, and because the relevant context makes clear to a person having ordinary skill in the art that the scope of the patentees’ right to exclude includes a bowl that moves closer to or farther away from a cone, not a bowl that moves closer to or farther away from itself. Essentially, then, a district court’s power to “correct” a claim under Novo is nothing more than the power to express the meaning of a claim in a conventional way,

⁴At the Markman hearing, Metso suggested that it would be reasonable to correct the claim by changing “said bowl” to “said bowl support,” and that therefore one can reasonably debate the correction. However, Metso’s suggestion is not reasonable. The claim language and the specification state that the bowl moves relative to the cone by moving up and down “on the [bowl] support.” Col. 6 l.37. Given this context, a person having ordinary skill in the art could not reasonably conclude that the bowl moves vertically on the support and closer to or farther away from that same support at the same time.

like changing “walk” to “dog” and “dog” to “walk” in my example, above. See I.T.S. Rubber Co. v. Essex Rubber Co., 272 U.S. 429, 441-42 (1926) (explaining that a court’s correction of an obvious error in a claim “is not in any real sense, a re-making of the claim; but is merely giving to it the meaning which was intended by the applicant and understood by the examiner”).

Before turning to the next disputed phrase, I will deny Metso’s motion for summary judgment of non-infringement and invalidity. That motion depends on construing claim 8 as requiring a bowl that moves closer to or farther away from itself. Since I have rejected that construction, it follows that the motion for summary judgment must be denied.

2. “. . . an annular surface . . .”

This disputed language appears in the fourth indented clause of claim 8. The parties have agreed that “annular” means “ring shaped,” and thus the parties agree that “an annular surface” means “a ring-shaped surface.” The dispute arises because JCI proposes that I add “of the lock ring” to the end of the first occurrence of “an annular surface.” Thus, under JCI’s proposed construction, the fourth indented clause of claim 8 would mean: a ring-shaped lock ring having a screw thread mated to the bowl and screwed onto the bowl and defining a ring-shaped surface of the lock ring in abutment with a ring-shaped surface of the support.

Metso argues that I should not add “of the lock ring” to the end of the first occurrence of “annular surface” because it is not already there. However, Metso does not contend that the annular surface being referred to is the surface of anything other than the lock ring. (Markman Hearing Tr. at 16-17.) Moreover, because “annular lock ring” is the subject of the clause, the clause as a whole tells us that it is the lock ring’s surface that is

in abutment with the annular surface of the bowl support. Thus, I will adopt JCI's proposed construction. This does not mean that I am giving "annular surface" different meanings in different parts of the claim. Rather, I am just recognizing that "of the lock ring" is contained in the meaning of the fourth indented clause by virtue of the fact that "annular lock ring" is the subject of that clause.

3. "... an annular piston fitted to the chamber . . ."

Although the parties separate "piston" and "fitted to the chamber" into two chunks and ask that I construe them separately, these terms are closely related and I find it helpful to discuss them together. Metso wants me to construe this phrase to mean "an annular component that fits snugly into the chamber and moves under fluid pressure that is designed to prevent fluid from escaping from the chamber." JCI wants me to construe this phrase to mean "an annular component that moves in response to a change in the pressure on one side thereof that is received in the chamber in such a manner that the piston can move with respect thereto."

The heart of the dispute is whether the claim language requires the piston to perform the function of preventing hydraulic fluid from leaking from the chamber. Everyone agrees that a person having ordinary skill in the art would know that a rock-crusher lock ring that leaks fluid doesn't work. Metso contends that this means that a person having ordinary skill in the art would understand claim 8 to require the fit between the piston and the chamber to be tight enough to prevent leakage. JCI, however, contends that claim 8 does not contain any limitation addressed to preventing leakage, and that therefore the fit between the piston and the cylinder does not have to be tight enough to perform that function.

I agree with JCI. The fifth indented clause of claim 8 requires a hydraulic cylinder comprising a piston and a chamber. Both the piston and the chamber are ring shaped, and the words “fitted to” convey the notion that the piston and the chamber work together to form a hydraulic cylinder. Based on the information presented in the parties’ declarations and at the Markman hearing, I conclude that a person familiar with hydraulic cylinders would expect the piston to fit snugly in the chamber, since it would be unusual to find, say, a piston with a diameter of one inch inside a chamber with a diameter of ten inches. And since nothing in the claims or the specification indicates that such an unusual hydraulic cylinder was intended, I conclude that a person having ordinary skill in the art would expect the piston to fit snugly in the chamber. But this does not mean that such a person would expect the piston to perform the function of preventing fluid from leaking from the chamber. Indeed, as Metso’s counsel conceded at the Markman hearing, although it would be possible “in theory” to design a piston that prevented leakage yet still was able to move in response to hydraulic pressure, it would be a challenge to do so. (Markman Hearing Tr. at 65-66.)

Likewise, nothing in the specification suggests that the piston is supposed to perform a sealing function. Instead, the specification explains that a separate seal must be used. For example:

Locking of the bowl to the bowl support (frame) as required for the crushing operation is provided by an annular seal and piston. An annular cavity is provided on the under side of the ring and the annular seal and piston is fitted to the cavity. A space above the seal and piston and within the cavity provides an expansion chamber. Hydraulic fluid pumped into the chamber forces the piston, e.g., against the frame with the lock ring screwed onto the bowl to generate the desired binding force. The annular piston produces the desired force consistently around the entire circumference.

'886 Patent, col. 2, l. 62 to col. 3, l. 4 (emphasis added). Furthermore, claim 9 of the patent, which builds off of claim 8, does claim a specific sealing structure. If claim 8 already included a component that sealed the chamber, what would claim 9 be adding? See Phillips, 415 F.3d at 1315 (“the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim”).⁵ Thus, a person having ordinary skill in the art who reads the entire patent – including the specification, claim 8 and claim 9 – would understand that claim 8 does not require that the piston perform a sealing function. Rather, in both claim 8 and claim 9, the piston simply moves in response to hydraulic pressure, leaving the sealing function to other components. In claim 8, the patentees do not claim any specific component that performs this sealing function, whereas in claim 9 they do.

Therefore, I construe the disputed language as follows: a ring-shaped component that fits snugly into the chamber and moves relative to the chamber in response to fluid pressure on one side.

4. “. . . providing hydraulic fluid to the chamber . . .”

This phrase appears in the sixth indented clause: “a hydraulic fluid source providing hydraulic fluid to the chamber, and a control for controlling the hydraulic fluid flow to the chamber for urging movement of the annular piston . . .” Metso contends that I should construe this language to mean “pumping hydraulic fluid into contact with the internal walls of the chamber.” JCI contends that I should construe this language to mean “providing

⁵Metso suggests that claim 9 adds a second sealing component, akin to wearing a belt and suspenders at the same time. However, if such an unusual result had been intended, we would expect to see some mention of it in the specification, rather than the consistent distinction between the piston and the seal that we actually find.

hydraulic fluid to the chamber so that a change in the pressure in the chamber will influence the piston to move with respect to the chamber.” This dispute arises because Metso’s accused device pumps hydraulic fluid into a bladder that is in a chamber, and then the expansion of the bladder in the chamber exerts pressure on a piston. If I construe claim 8 to require hydraulic fluid to come into contact with the walls of the chamber, then the claim will not read on Metso’s bladder-lined chamber, since the bladder is between the fluid and the walls.

I conclude that the claim does not require hydraulic fluid to make contact with the walls of the chamber. As used in the disputed language, “to” is a function word that indicates movement toward a place. See Webster’s Third New International Dictionary 2401 (1986). Thus, the disputed language conveys the notion that the fluid moves from the source to the chamber. It does not impose any restrictions on what happens once the fluid reaches the chamber (such as touching the chamber’s internal walls). Other language in the claim explains what happens when the fluid arrives at the chamber: it urges movement of the annular piston. Although the claim does not specify the manner in which the fluid urges movement, a person having ordinary skill in the art would understand that the piston will move only if the fluid is able to produce hydraulic pressure. However, the precise manner of producing hydraulic pressure is not recited in the claim. As far as the claim is concerned, one could use a seal (which would require the fluid to come into contact with the walls), a bladder (which would not), or any other component that would cause the provision of fluid to the chamber to produce hydraulic pressure. Although the specification describes use of a seal, it does not suggest that the invention is limited to a device that uses a seal. Thus, nothing in the patent suggests that claim 8 requires

hydraulic fluid to come into contact with the internal walls of the chamber. I therefore adopt JCI's proposed construction of the disputed language.

5. “. . . a control for controlling the hydraulic fluid flow to the chamber . . .”

The next disputed phrase also appears in the sixth indented clause: “a hydraulic fluid source providing hydraulic fluid to the chamber, and a control for controlling the hydraulic fluid flow to the chamber for urging movement of the annular piston” JCI contends that this phrase means “an inherent feature of the hydraulic fluid source that may be turned on or off to allow or stop the flow, or adjusted to increase or decrease the flow, of hydraulic fluid to the chamber.” Metso contends that this phrase should be construed as a “means-plus-function” claim element.

“Means-plus-function” refers to a technique for drafting claims under § 112, ¶ 6 of Title 35. See 35 U.S.C. § 112, ¶ 6.⁶ Generally, means-plus-function claiming involves defining a claim element by what it does (its function) rather than by what it is (its structure). See Robert C. Faber, Faber on Mechanics of Patent Claim Drafting § 3:29.1 (6th ed. 2011). A patentee will decide to draft portions of a claim in means-plus-function form when he or she wants to claim a function without limiting the invention to a particular structure. For example, in the present case, the patentees have specified in claim 8 that the lock ring is locked into place through the use of hydraulic components. The hydraulic

⁶The statutory text states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

components – the piston, the cylinder, the fluid source, and the control – are “structure,” and thus this part of the claim was not drafted in means-plus-function form. However, if the patentees had not wanted to limit the invention to a device that uses hydraulic pressure, they could have omitted any reference to hydraulic components and instead claimed “means for” locking the lock ring into place. If the patentees had chosen this means-plus-function form, the claim would be deemed to cover any structure disclosed in the specification plus any equivalents of that structure. See id. Thus, assuming that the patentees had used the means-plus-function form and disclosed hydraulic components in the specification, the claim would be read to incorporate hydraulic components plus any equivalents of hydraulic components, such as components that utilize gas pressure rather than fluid pressure.

In order to take advantage of means-plus-function claiming, however, the patentee must disclose sufficient structure for performing the function in the specification. This requirement stems from the second paragraph of § 112, which requires that claims particularly point out and distinctly claim the subject matter that the applicant regards as his or her invention. See Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1381-82 (Fed. Cir. 1999). The Federal Circuit has held that one will not know what a claim element in means-plus-function form means unless the structure that corresponds to the means is disclosed in the specification. Id. at 1382. If the patentee fails to disclose corresponding structure in the specification, the claim containing the means-plus-function language will be deemed to be invalid. See, e.g., In re Katz Interactive Call Processing Patent Litig., 639 F.3d 1303, 1315 (Fed. Cir. 2011).

In the present case, Metso argues that “a control for controlling the hydraulic fluid flow to the chamber” is in means-plus-function form. Its reason for making this argument is that the patentees did not disclose any structure that corresponds to the means in the specification. Thus, if I determine that the disputed language is in means-plus-function form, claim 8 will be deemed invalid.

The Federal Circuit has adopted a framework for determining whether claim language is in means-plus-function form. See, e.g., Inventio AG v. Thyssenkrupp Elevator Americas Corp., 649 F.3d 1350, 1356 (Fed. Cir. 2011). Under this framework, the use of the word “means” triggers a rebuttable presumption that the language is in means-plus-function form. Conversely, where the claim language does not contain the word “means,” the court presumes that the language is not in means-plus-function form. When the claim language does not contain the word “means,” the presumption can be overcome if the challenger demonstrates that the claim language fails to “recite sufficiently definite structure” or else recites “function without reciting sufficient structure for performing that function.” Id. (internal quotation marks omitted). However, “the presumption flowing from the absence of the term ‘means’ is a strong one that is not readily overcome.” Id.

In the present case, the disputed language does not contain the word “means,” and so the strong presumption against the claim being in means-plus-function form applies. Metso attempts to rebut this presumption by arguing that the noun “control” does not recite sufficient structure for performing the function of “controlling the hydraulic fluid flow to the chamber.” However, the extrinsic evidence in this case makes clear that artisans in the field of rock crushers associate the term “control” with structure rather than function. As Metso concedes, such artisans are familiar with “conventional ‘control’ mechanisms for

delivering hydraulic fluid to rock crushing systems.” (Metso Br. [Docket #25] at 18.) Metso goes on to argue that artisans would not know of any specialized hydraulic control systems that might be necessary to control hydraulic pressure in the particular locking system claimed in claim 8, but nothing in claim 8 indicates that the patentees had anything other than a conventional control mechanism in mind. (See Vendelin Decl. [Docket #19-3] ¶ 21 (stating that claim 8 calls for a “conventional” control)). Put differently, in using the phrase “control for controlling the hydraulic fluid flow,” the patentees were not referring to anything novel; they were simply incorporating the concept of a conventional hydraulic fluid control into their invention, much the same way that an inventor of a novel automobile might incorporate a conventional wheel into an invention.⁷

Metso submits affidavits from artisans stating that the term “control” does not refer to any “specific part,” and that it could be understood to refer to “a plethora of components.” (Lawnicki Decl. [Docket #38] ¶ 11.) However, to avoid the application of means-plus-function claiming rules, a claim term does not have to “denote a specific structure.” Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1359 (Fed. Cir. 2004) (emphasis added). Rather, “it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term

⁷Metso suggests that there is something special about the means for controlling hydraulic fluid in a rock crusher that doesn’t incorporate a bladder. However, Metso has cited nothing that indicates that a control in a bladder-less rock crusher is any different than a control in a bladder-dependent rock crusher. In either device, the function of the control is to pump hydraulic fluid into a confined space so that pressure builds up and pushes something against the bowl. As far as the record reveals, the structure of the control does not have to be modified when the confined space is a sealed chamber (as in JCI’s device) rather than a bladder (as in the accused device). Thus, a conventional control mechanism will suffice.

covers a broad class of structures and even if the term identifies the structures by their function.” Id. (emphasis added). Accord Duratech Indus. Int’l, Inc. v. Bridgeview Mfg., Inc., 292 Fed. Appx. 931, 933 (Fed. Cir. 2008) (claim term does not have to “conjure up any one specific structure”; rather, it is enough if term conveys to one skilled in the art a certain “genus” of structures). Here, Metso’s experts demonstrate that they know the broad class of structures being designated by the word “control.” They admit that they engineer the relevant control mechanisms all the time. (Hall Decl. [Docket #20] ¶ 21.) Although Metso’s experts emphasize that significant engineering work is required to customize a control to a specific application, that does not change the fact that “control” designates a general class of structural components. Presumably, one has to customize many parts of a rock crusher – including the bowl, the cone and the frame – rather than simply pull them “off the shelf” for use in a particular application, but that does not transform “bowl,” “cone” and “frame” into functional terms. The same is true for “control.”

Accordingly, I will not construe “control for controlling the hydraulic fluid flow to the chamber” as a means-plus-function element. This conclusion is enough to resolve the parties’ dispute over the meaning of this part of the claim, and therefore I see no need to determine whether I should go one step farther and adopt JCI’s proposed construction.

6. Claim 8: “. . . urging movement of the annular piston . . .”; Claim 9: “. . . induces movement of the annular piston . . .”

The dispute over the next two chunks of claim language relates back to the dispute over the meaning of the word “piston,” which I resolved above. The parties agree on the meaning of the remaining terms: “urging” means “causing,” “induces” means “causes,” “annular” means “ring shaped,” and “movement” does not need to be construed. Thus, I

will simply insert my definition of “piston fitted to the chamber” (minus the “fitted to the chamber” language) into these phrases: the phrase in claim 8 means “causing movement of the ring-shaped component that moves relative to the chamber in response to fluid pressure on one side,” and the phrase in claim 9 means “causes movement of the ring-shaped component that moves relative to the chamber in response to fluid pressure on one side.”

7. Claim 8: “. . . the other of the lock ring and support . . .”; Claim 9: “. . . the other of the lock ring and bowl support.”

The next two chunks of disputed language relate to the patentees’ attempt to draft their claims to cover a device in which the piston and chamber are located in either the lock ring or the bowl support. Functionally, it makes no difference where they are located. If they are in the lock ring, then the piston will push against the surface of the bowl support. If they are in the bowl support, then the piston will push against the surface of the lock ring. Either way, the force of hydraulic pressure will bind the lock ring and the bowl together, thereby preventing movement of the bowl.

To claim both alternatives, the patentees used the following technique: In the fifth indented clause, they introduced the annular chamber as an element by specifying that the chamber is provided “in one of the lock ring and bowl support.” This is a convention in claim drafting used to indicate that a choice must be made between two possibilities. Here, the choice is to provide the chamber in either the lock ring or the bowl support. Later in the same indented clause, the patentees introduced the annular piston as an element, specified that the piston is fitted to the chamber, and specified that the surface of the piston provides the abutment surface for “one of said lock ring and bowl support.” This means

that the piston provides the abutment surface for either the lock ring or the bowl support, depending on the choice that was made with respect to the location of the chamber: if you choose to put the chamber in the lock ring, the piston provides the abutment surface for the lock ring; if you choose to put the chamber in the bowl support, the piston provides the abutment surface for the bowl support. In claim 8, the sixth indented clause explains that when hydraulic pressure builds up in the chamber, the piston moves toward the surface of “the other of the lock ring and [bowl] support.” This means that the piston moves toward the surface of the component that does not contain the chamber. Thus, if you choose to put the chamber in the lock ring, the piston moves toward the surface of the bowl support. If you choose to put the chamber in the bowl support, the piston moves toward the surface of the lock ring. Claim 9, the dependent claim, also speaks in terms of moving the piston against “the other of the lock ring and bowl support.” Again, this means that the piston moves against the surface of the component that does not contain the chamber.

Metso argues that the above-described technique renders claims 8 and 9 “insolubly ambiguous.” This is a way of saying that claims 8 and 9 are indefinite and therefore do not satisfy § 112, ¶ 2, which requires claims to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Metso argues that using “one of the lock ring and bowl support” twice and “the other of the lock ring and bowl support” twice leaves the ordinary artisan with no way of determining which element is being referred to where. But I think my description of the patentees’ drafting technique, above, shows that Metso is wrong. If not, I can be more explicit. In the fifth indented clause in claim 8, the phrase “one of the lock ring and bowl support” is used twice. However, the second occurrence includes the word “said,” which makes clear that the second

occurrence refers to whatever element was chosen in the first occurrence, rather than a fresh choice between lock ring and bowl support. Even if “said” had not been included, it would be clear that the same element is being referred to, since the overall context of the clause makes clear that the piston provides the abutment surface for whatever component contains the chamber.

Context also makes clear that the two occurrences of “the other of” the lock ring and bowl support are references to the component that does not contain the chamber. This is because both occurrences appear in phrases explaining that hydraulic pressure is used to push the piston against the surface of something in order to lock the bowl into place. Given the structure explained in earlier portions of claim 8, that something could only be the one of the lock ring and bowl support that does not contain the chamber.⁸

Accordingly, claim 8 and claim 9 are not insolubly ambiguous. Each occurrence of the disputed language means “the one of the lock ring and bowl support that does not include the ring-shaped chamber.”

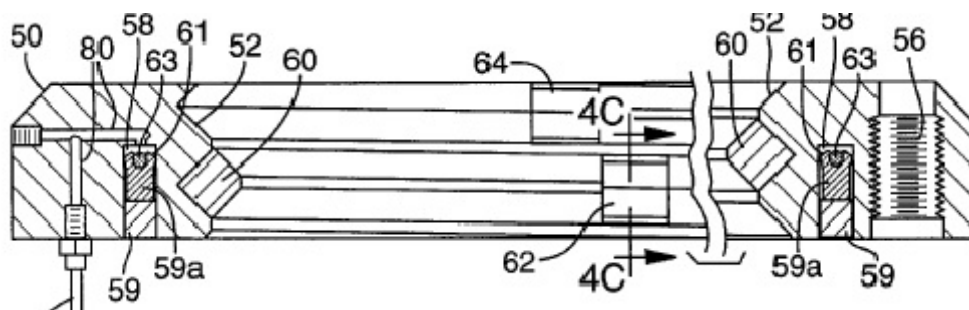
- 8. “. . . wherein the piston is provided with a seal portion between the piston and hydraulic fluid and expands under pressure to seal the chamber and induces movement of the piston . . .”**

This language appears in claim 9, the dependent claim. The parties have identified the disputed language as “expands under pressure,” but I find that the larger chunk of

⁸In its briefs, Metso develops an analogy to ordering drinks for three people to show that using the language “one of element A and B” multiple times leads to ambiguity. (Metso Br. [Docket #25] at 22.) Although it is not worth explaining this analogy in detail, I will point out that the flaw in the analogy is that it assumes that three drinks are being ordered, whereas in the '886 patent, context makes clear that only two components – a lock ring and a bowl support – are being “ordered.” Each use of “one of the lock ring and bowl support” refers to the same component, and each use of “the other of the lock ring and bowl support” refers to the same component.

language identified in the section heading, above, provides the appropriate scale for determining meaning.

Essentially, the dependent claim claims the preferred embodiment of the invention, in which the hydraulic chamber is sealed with a “seal portion” that is on top of the piston. The image below is a cross-sectional view of the inside of the lock ring. The seal portion is represented as 59a, and the piston is represented as 59.



When hydraulic fluid is provided to the chamber above the seal portion, the seal portion expands under pressure. This expansion both seals the chamber and causes the piston to move downward and exert the forces that lock the bowl into place.

The problem that gives rise to the parties' dispute is that the claim language is awkwardly drafted. The grammar of the claim implies that “the piston” (1) is provided with a seal portion between the piston and hydraulic fluid, (2) expands under pressure to seal the chamber, and (3) induces movement of the piston. This, however, does not make sense, since the structure identified in claim 8 (which claim 9 takes for granted) requires the hydraulic pressure to induce movement of the piston. Further, the notion of a piston moving itself is nonsensical, and the specification explains that it is the seal portion, not the piston, that expands under pressure to seal the chamber and that induces movement of the piston. Finally, at the Markman hearing, JCI's expert testified that if the piston itself

expanded, it would act as a “plug” that would render the hydraulic cylinder inoperable. (Markman Hearing Tr. at 48-49.) Thus, when the disputed language is read in light of the whole of claim 8, the specification, and the background knowledge of an ordinary artisan, it becomes clear that it means: wherein a piston is provided with a seal portion between the piston and the hydraulic fluid, and wherein the seal portion expands under pressure to seal the chamber and induces movement of the piston. Because this is the meaning that a person having ordinary skill in the art would assign to the claim language, I adopt it as my construction of claim 9.

Metso argues that the grammar and syntax of the disputed language should be given dispositive weight, and that therefore we have no choice but to construe the language in a way that produces a nonsensical result – namely, a result in which the piston expands and somehow moves itself. However, although grammar and syntax are certainly useful in determining meaning, they do not trump all other clues regarding the meaning of a set of words. As the Seventh Circuit has recognized:

Sentences are not isolated units of meaning, but take meaning from other sentences in the same document.

. . . To interpret a contract or other document, it is not enough to have a command of the grammar, syntax, and vocabulary of the language in which the document is written. One must know something about the practical as well as the purely verbal context of the language to be interpreted. . . . A blinkered literalism, a closing of one's eyes to the obvious, can produce nonsensical results

Beanstalk Group, Inc. v. AM General Corp., 283 F.3d 856, 860 (7th Cir. 2002). More succinctly, “[g]rammar needn't trump sense.” Miller v. McCalla, Raymer, Padrick, 214 F.3d 872, 875 (7th Cir. 2000). In the present case, the context of claim 9 – including all of claim 8 (on which claim 9 is built), the specification, and the background knowledge of an

ordinary artisan – outweighs the grammatical clues as to the meaning of the claim. A person having ordinary skill in the art would thus have notice that what is claimed is a seal portion that expands under pressure and induces movement of a piston, not a piston that expands and induces movement of itself.

I realize that the cases I have cited are from the Seventh Circuit rather than the Federal Circuit, and that they involve contractual and statutory interpretation rather than claim construction. However, the principles being discussed apply to language in general rather than to anything particular to language as used in contracts or statutes. Moreover, the Federal Circuit caselaw is not inconsistent with these principles. Although one case states that “[a] claim must be read in accordance with the precepts of English grammar,” In re Hyatt, 708 F.2d 712, 714 (Fed. Cir. 1983), I do not read this as an ironclad rule of claim construction holding that the meaning implied by the grammar of a sentence when that sentence is read in isolation trumps the meaning of that sentence when it is read along with its surrounding context by a person having ordinary skill in the art. In any event, more recent cases indicate that grammar and syntax are only “instructive” as to the “true meaning” of a claim. Credle v. Bond, 25 F.3d 1566, 1571 (Fed. Cir. 1994); accord Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1553 (Fed. Cir. 1997) (implying that syntax is only one of several signs indicating the meaning of a claim term), abrogated on other grounds by Cybor Corp v. FAS Techs., Inc., 138 F.3d 1448 (Fed. Cir. 1998).

IV. CONCLUSION

For the reasons stated, I construe the '886 patent as described above. Further, **IT IS ORDERED** that Metso's motion for summary judgment of non-infringement and invalidity is **DENIED**. **FINALLY, IT IS ORDERED** that JCI's motion to file a sur-reply brief is **GRANTED**.

Dated at Milwaukee, Wisconsin, this 28th day of November 2011.

s/_____
LYNN ADELMAN
District Judge